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attributed to motion, must be at a velocity far too great for any assignable physical cause. The measured lengths from Hβ to Hγ, to Hδ, to Hϵ, to Hζ, and to Hη centre to centres of the bright bands, guided by the reversals, are the same as the lengths measured on the spectra of comparison stars; and the measured lengths of the same intervals in the dark line series proceed with an increasing difference, showing a longer spectrum. These differences will be given in wave-length measure in a future full report of the observations of the new star; and they will probably be found to need velocity of the order 10^3 miles to account for them by motion in the line of sight.

Stonyhurst College Observatory:
1901 *April* 7.

The Spectrum of Nova Persei. Note 3.

By Rev. W. Sidgreaves.

Nova Persei as a Variable Star with a Variable Spectrum.

On March 22 it was first seen that there was a marked change in the spectrum when the star was very small, about equal to *l Persei*. A prominent bright yellow band appeared to rival Hα; and on the photograph one of the bright blue bands stood out boldly on the weak continuous spectrum as strong as Hβ, accompanied by three other weaker bands; and, thirdly, the bright Hζ band was extended on the violet side to double its usual width.

On March 25 and 28 the bright yellow band was the same, and the photographed spectrum was the same as on the 22nd; while the photographed spectrum of the 27th was of the same type as on the 21st and previous days: the blue bands were more masked by the stronger continuous spectrum, and Hζ was at its usual breadth. A reference to the journal of observations showed that the three dates, 22nd, 25th, 28th, were probably well marked minima of the star's light curve; and although there was only the one photograph of the spectrum on an intervening day, when the star was brighter, the yellow band had been observed through breaks in the clouds on the 24th and 26th, and was noted as not so prominent as on the three nights of minimum brightness. Since then no photograph has been obtained on a date of minimum magnitude, supposing the period to be three days; but a good photograph on April 4, when the star appeared very nearly equal to κ *Persei*, showed the same spectrum as on the 27th, and the yellow band was noted as weak.

There can be no doubt about the variations of the star's magnitude and of its continuous spectrum; these go together;

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and the prominence of the yellow and blue bands at the minimum epoch is in the main the result of the greater contrast on a darker ground. But this does not appear to be enough to account for the strength of the brightest of the blue bands, and fails completely to explain the great extension of the bright H_ζ band.

Whatever, therefore, be the cause of dimming the white light of the star at its minimum brightness, it does not in proportion stop its gaseous radiation.

Stonyhurst College Observatory: 1901 April 7.

Observations of the New Star in Perseus made at the Radcliffe Observatory, Oxford.

(*Communicated by Arthur A. Rambaut, M.A., Sc.D., F.R.S., Radcliffe Observer.*)

This paper is a continuation of one published in the last number of the *Monthly Notices* (pp. 348–354). It contains the results of the observations of the brightness of *Nova Persei* made at the Radcliffe Observatory since the date of the last meeting of the Society.

The estimates of brightness have been made as described in the previous paper, but the comparison stars used in these observations are situated in the immediate neighbourhood of the Nova, being all contained within the constellation Perseus. In making the comparisons, as the brightness of the star diminished, recourse was had from time to time to telescopic aid with apertures of from 1¾ in. to 10 in., as indicated in the notes.

In Table I. below are given a number for reference, the names of the stars used, and the Harvard magnitudes on which our estimates are based.

Table II. contains the means of each observer's separate comparisons and the general mean for each night.

The results of our observations made since the discovery of the star are graphically represented in the accompanying figure. This diagram exhibits very clearly the variation in the brightness of the star noticed by von Glasenapp and Dunér, and corroborates the period of three days found by them. Thus we have four successive minima taking place on March 22, 25, 28, and 31, and after a cloudy interval we have two more on April 6 or 7 and 10.

A comparison of the notes on the colour of the star with the variation in its brightness seems to indicate some relation between these two phenomena, and suggests that a diminution of light is accompanied by an increase in the redness of the

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